



DEPARTMENT OF THE NAVY

BOARD OF INSPECTION AND SURVEY
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VIRGINIA BEACH, VA 23459-3295

INSURVINST 4730.23D
2 Apr 12

INSURV INSTRUCTION 4730.23D

From: President, Board of Inspection and Survey

Subj: STANDARDS FOR MINE HUNTING AND SWEEPING EQUIPMENT
DEMONSTRATIONS

1. Purpose. To establish President, Board of Inspection and Survey (INSURV) policy and standards for demonstrating the material condition of mine hunting and sweeping equipment during INSURV trials and inspections.

2. Cancellation. INSURV Instruction 4730.23C

3. Discussion. Mine warfare equipment demonstrations are non-tactical exercises of mine hunting and mine sweeping equipment capabilities. The Mine Hunting Demonstration will exercise mine hunting, classification, and neutralization systems. The Mine Sweeping Demonstration will exercise mine sweeping systems including deck-handling equipment, and magnetic and acoustic mine countermeasures equipment. Navigation, propulsion and auxiliary equipment supporting mine warfare operations are also included in the evaluation.

a. Essential steps of the Mine Hunting Demonstration:

(1) Acquisition and classification using the AN/SQQ-32(V) sonar.

(2) Plotting ship and mine positions on the AN/SSN-2 Precise Integrated Navigation System (PINS).

(3) Deployment and simulated mine neutralization using AN/SLQ-48(V) Mine Neutralization System (MNS) and an inert Mission Package 3 (MP3).

(4) Deployment of AN/SQH-4A Battle Space Profiler (BSP).

b. Essential steps of the Mine Sweeping Demonstration are:

(1) Rigging, streaming and pulsing of the magnetic cable.

(2) Rigging, streaming and activation of the acoustic power cable and acoustic device on platforms so equipped.

(3) Plotting ship and swept areas on PINS.

c. The material condition of the following equipment (as applicable) will be inspected/demonstrated:

2 Apr 12

- (1) AN/SQQ-32(V) Sonar.
 - (2) OK-520 Winch (including Auto Haul-In (AHI) on, AHI off (override)) and alarms/warning indicators (Towed Body (TB) too close to the bottom).
 - (3) PINS.
 - (4) AN/SLQ-48(V) Mine Neutralization System.
 - (5) Vehicle Handling System (VHS).
 - (6) AN/SQH-4A Battle Space Profiler (BSP).
 - (7) Bow Thruster.
 - (8) Light Load Propulsion Motors (LLPM).
 - (9) Hydraulic Power Units (HPUs).
 - (10) Magnetic Sweep Generator/Wave Form Generator.
 - (11) Magnetic Cable including CL3 cable, TJ3 Jumper, and reel/winch assembly.
 - (12) Acoustic Cable reel winch assembly and acoustic power cable if equipped.
 - (13) Mechanical retrieval system for the magnetic and acoustic reel (must be demonstrated prior to the sweep demonstration).
 - (14) Dual operation of the magnetic and acoustic reels.
 - (15) Mk 4 and Mk 6 (TB 27/26) Acoustic Devices.
 - (16) TB35/36 Advanced Acoustic Generator (AAG) and Infrasonic Advanced Acoustic Generator (IAAG).
 - (17) Mechanical Mine Sweep equipment.
 - (18) Deck cranes used for mine warfare equipment.
 - (19) Instrumented sheaves and associated displays.
4. Policy. Mine warfare demonstrations will be conducted on all MCM-1 AVENGER class ships.
5. Requirements. The ship is required to conduct non-tactical exercises of mine hunting and mine sweeping operations demonstrating all installed equipment capabilities.

2 Apr 12

a. After the INSURV arrival conference, the ship shall conduct a Mine Hunting and Sweeping Demonstration brief with the inspectors in attendance. Emphasis will be on safety, readiness status, and configuration of the ship's combat systems. Event sequence and environmental conditions will be included in the brief. A sample brief template is available on the INSURV website (<http://www.public.navy.mil/fltfor/insurv>).

6. Mine Hunting

a. Preparation

(1) For the mine hunting demonstration, the ship is responsible for the placement of a suitable mine shape. A Diablo is not acceptable.

(2) The ship shall be positioned in an area with minimal shipping present.

(3) The ship shall conduct a sonar condition check using the BSP data as a starting point for sonar setup. Additionally, the ship will ensure environmental conditions are within parameters IAW NWP 3-20-6-19 (MCM Class Tactical Manual) and will inform the senior inspector if conditions are not satisfactory.

(4) A mine datum shall be entered into PINS and displayed on the command and control consoles. The ship shall reposition just beyond the maximum predicted detection range of the sonar, or 1200 yards if BSP data is not available.

(5) The AN/SLQ-48(V) Mine Neutralization Vehicle (MNV) shall be prepared for launch. An inert MP3 will be mounted on the MNV and employed during the demonstration.

(6) All equipment should be fully operational in normal (not casualty) mode and meet PMS specifications. In addition, critical installed monitoring and support systems (e.g. DRT, electronic cooling, electrical power, etc.) should be operational to support mine hunting.

b. Procedures

(1) The ship will lower the sonar to the depth required to maximize contact based on water conditions indicated by the BSP.

(2) The ship will approach the DATUM using diesels, LLPMS and/or bow thrusters until sonar contact is gained on the mine-like object. The sonar contact position will be passed to the PINS console and plotted.

2 Apr 12

(3) After the contact is classified as a mine-like object the ship will maintain a standoff distance of approximately 150 yards. Based on the results of the sonar detected mine-like object position, the MNV will be launched and "flown" to the sonar contact position utilizing the acoustic tracking system, the MNV sonar and the MNV camera.

(4) The MNV will be piloted to the mine-like object, obtain contact on the object with the MNV sonar, sight the object with the camera, and deploy the inert MP3. The MNV will back away from the inert MP3, maintaining visual contact until verification of a successful MP3 float release.

(5) A "release" signal will be transmitted using the AN/WQC-2. If float release is unsuccessful, the ship will reposition IAW doctrine and the signal will be transmitted again. If the release is still unsuccessful, release shall be attempted using the Over-the-Side transducer.

(6) Once the float is verified as released, the MNV shall be flown back to the ship and recovered.

(7) The operation of the Umbilical Cable Handling System (UCHS) will be monitored throughout the mine hunting demonstration.

7. Mine Sweeping

a. Preparations

(1) The ship shall be positioned in an area with minimal shipping present.

(2) Mechanical sweep gear will be inventoried and inspected, and deck winch operation will be validated prior to demonstration. Complete ship load-out will be onboard for the underway demonstration.

(3) Either the TB-26 or TB-27, whichever is not being demonstrated in the water, will be tested on deck. TB-35/36 require waterflow to operate and both will be deployed.

b. Procedures

(1) The ship will rig and stream a combination magnetic and acoustic (MK 6(H)) sweep, using the acoustic device stowed on the starboard side, with a MK 9 end cutter and MK 15 breakaway cutter only.

(2) Once deployed, the magnetic tail will be pulsed using waveform 1 (5 seconds on-time and 10 seconds off-time) incrementally increasing current to maximum current (5000 amps/approx 120 VDC). Maximum duty cycle will be maintained for

a minimum of 15 minutes.

(3) Streamed acoustic equipment (TB 26/27) or (TB 35/36) will be energized and the Power Converter Unit RPM meter or the Sweep track monitor will be observed.

(4) The operation of Hydraulic Power Units (HPUs) in their normal operating configuration will be monitored throughout mine sweeping operations.

(5) Dual operation of the magnetic and acoustic reels will be demonstrated.

(6) Upon completion, the sweep configuration will be recovered.

8. Exceptions

a. For Japan-based ships, until host nation restrictions on mine hunting OPS are lifted, mine hunting capability will be demonstrated by performing only the following, in port on day 2:

- (1) Paragraph 6.a. (1), and (4)-(6)
- (2) Paragraph 6.b. (4)-(7)

9. Responsibility

a. As with all ship's operations, the Commanding Officer retains responsibility for the safe conduct of this demonstration and for ensuring all applicable safety precautions are enforced. Nothing is more important than the safety of all personnel and equipment.

/s/

R. O. WRAY

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